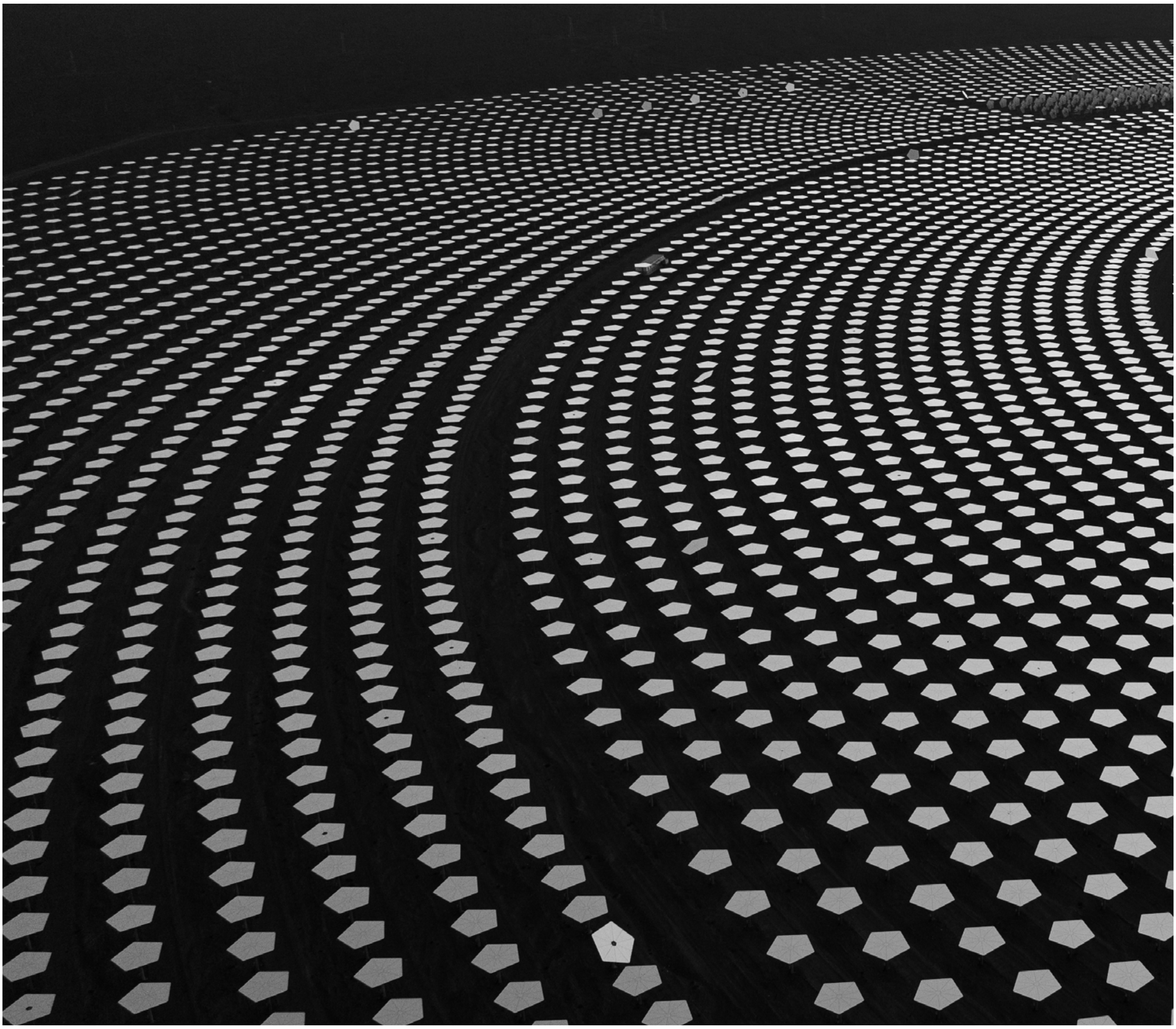
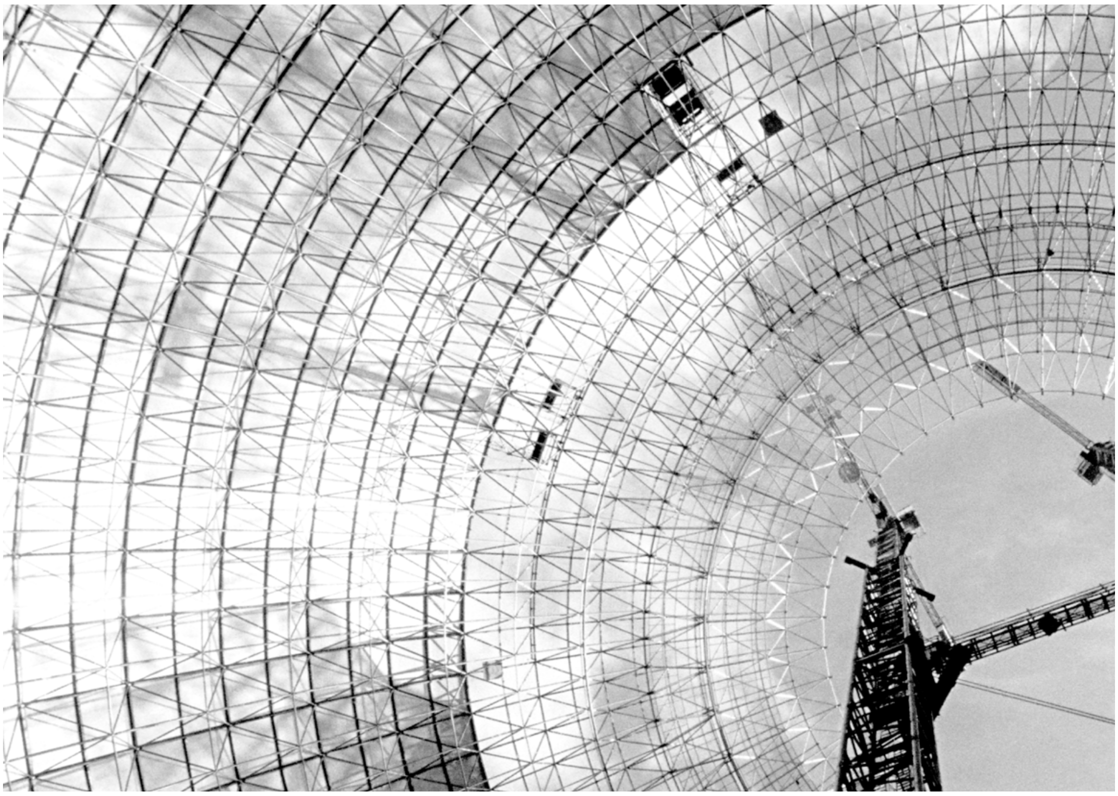
A&O SHEARMAN



Nigeria's *Energy Transition*

POWERING A SUSTAINABLE FUTURE



The world is rapidly shifting towards new forms of energy generation to power communities and drive economies. This transition is particularly crucial in Africa, where 600 million people live without electricity and roughly 1 billion people lack access to clean cooking. The costs are significant. According to the International Energy Agency (**IEA**), achieving Africa's energy and climate related goals by 2030 will require investment of over USD200 billion annually through the end of this decade.[1] This investment is vital to meet the growing energy needs of the African continent, where the median age is 20 years and the average GDP per capita is just over 25% of the global average.

Nigeria, Africa's largest country, is uniquely positioned to benefit from this transition. However, it faces significant challenges – some common to its neighbors and others unique to it.

In this paper, we look at what energy transition means for Nigeria in the coming years, how Nigeria's own Energy Transition Plan (**ETP**) intends to transform the country, the opportunities for financing investments in Nigeria's energy transition projects, and what Nigerian companies and other stakeholders can do to assist Nigeria's transition in line with their own goals.

WE HAVE SPLIT THIS PAPER INTO THREE SECTIONS:

A—**Background**—the context for Nigeria's energy transition.

B—**Financing**—an introduction to climate financing opportunities in Nigeria and how to enhance them.

C—**Actions**—focusing on the actions key stakeholders can take to assist Nigeria's energy transition.

A. Background

THE CONTEXT FOR NIGERIA'S ENERGY TRANSITION

The opening to the ETP eloquently summarizes both the need behind Nigeria's energy transition and the associated opportunity for Nigeria:

"In Nigeria, desertification in the north, floods in the centre, pollution and erosion on the coast and the associated socio-economic consequences all allude to the reality and grave impacts of climate change. Consequently, bold action to limit the impacts of climate change must be undertaken urgently.

At the same time, in light of rapidly rising population, accelerated development is needed to ensure improved living conditions for millions of Nigerians.

The next couple of decades present a unique opportunity to merge these two priorities; economic development and climate action, and to achieve in Africa's largest economy, one of the world's first true just transitions."

These sentences capture Nigeria's challenges and its energy transition imperative. They also highlight a key distinction between the tasks facing developed and developing countries.

For developed counties, energy transition has been described as a "trilemma" – a need to balance three aims: decarbonization, energy security and energy affordability, made more difficult in recent years via geo-political events with global impacts.

Developing countries also face the trilemma and the same impacts but with additional aims and considerations that skew that balance. Nigeria, and indeed Africa, faces grave impacts from climate change while seeking to lift millions out of poverty and economic hardship through long-term economic growth, with far less access to the capital required to do so.

At time of publication, global investment in renewable power and fuels continues to break records year after year. Various factors have contributed to this increase in recent years, including the global energy crisis, fluctuating fossil fuel prices, ongoing recovery from the COVID-19 pandemic and the continued decline in unit costs for deploying renewables. However, this trend is countered in part by increasing costs arising from ongoing supply chain disruptions and input costs for key raw materials. We also see, across the world, good news in terms of increasing alignment across climate change policy ambitions, energy security goals and industrial strategies – though at time of publication there have been signs of gathering clouds in recent months, with US political developments, continuing geo-political conflicts and rising protectionism. These events pose questions around certain countries' continued commitment to the principles of the Paris Agreement.

While ramping up energy transition investments globally is critical to addressing the impacts of climate change, such investments are not split evenly regionally. Renewable energy investment remains concentrated strongly in North America, Europe and China. In 2024, another record year for global clean energy investment, Africa represented only 2% of the total (even though the total for Africa was a substantial increase from 2022/2023)[2]. This discrepancy underlines how global energy transition remains uneven, marked by persistent inequalities which undermine the goal of a just transition.

Before delving into the ETP and its challenges, it is worth examining some of Nigeria's advantages and special features, which underscore the significance of its energy transition on a continental, and arguably, global scale.

Nigeria is Africa's largest economy, blessed with agricultural, mineral and oil and gas resource endowments. Its population of over 200 million people presents huge market opportunities, the largest in Africa for domestic production and it is a dynamic hub for innovative business growth. According to the International Finance Corporation (**IFC**)[3], one of its main strengths is a young entrepreneurial population with the vibrancy to attract investment to key sectors, boost entrepreneurship and nurture its expanding high-tech and digital economy.

In terms of key energy resources, Nigeria features solar photovoltaic (**PV**) resources equivalent to Portugal[4], a country with a strong renewable sector. The International Renewable Energy Agency (**IRENA**) estimates the potential for solar PV in Nigeria at 210 GW, assuming just 1% of the suitable land can be utilized for project development. The solar PV resource is strongest in Northern Nigeria, a region perhaps most in need of expanding energy access.

Nigeria also has significant oil and natural gas reserves, estimated at approximately 37.5 billion barrels of crude oil, making it the largest oil producer in Africa and the 11th largest oil producer globally.[5] According to the IFC, Nigeria's income from oil and gas accounts for approximately half of Nigerian government's revenues and contributes around 90% of its export earnings.[6]

These resources are both a blessing and a challenge, with Nigeria's dependency on crude oil exports historically contributing to increasing poverty and inequality. High dependency on fossil fuels exposes Nigeria's economic growth to the "boom and bust" cycle of global oil prices, creating economic uncertainty, and dissuades investment in the infrastructure Nigeria needs, including to build other sectors of the economy and expand public services as well as decarbonize its economy.

Another key issue bearing on Nigeria's energy transition is the decade-long struggle by the Nigerian government to reform fuel subsidies. This struggle highlights, as is the case in other countries like Indonesia and Egypt, how a policy grounded in poverty relief can introduce economic inefficiencies and impede Nigeria's long-term economic development.

In May 2023, the incoming President Bola Tinubu announced the removal of the last major fuel subsidy to stem the impact of skyrocketing fuel subsidy payments on government revenues as well as address environmental concerns. This has led to spiralling fuel prices and inflation[7] with substantial negative impacts on poorer Nigerians, worsened by the depreciation of the Naira. The Nigerian government responded with a series of conditional cash transfers to poor households in 2023 and 2024 but, at the time of publication, remains under significant political pressure to reintroduce subsidies, thereby repeating the cycle of inefficiency.

The historic fiscal impacts of fuel subsidies on the Nigerian economy have been staggering. Nigeria's petrol subsidy payments reached a total of N10.4 trillion in the 13-year period between 2006 and 2019.[8] Just in 2022, subsidy payments of N4.39trn (USD9.7bn)[9] exceeded the combined public allocations for education and health.

While there are no easy solutions, Nigeria's hope of addressing some of the challenges identified above lies in energy transition, including expanding local refining capacity to reduce dependence on refined oil imports, deploying low-carbon power generation and electrifying its transport sector.

BACKGROUND TO THE ETP

At COP26, then Nigerian President, Muhammadu Buhari, announced Nigeria's commitment to carbon neutrality, stating, "*For Nigeria, climate change is not about the perils of tomorrow but what is happening today. Nigeria is committed to net-zero by 2060.*"

According to the Energy Commission of Nigeria[10], President Buhari's historic commitment flowed from the ETP developed in 2021 with support from the COP26 Energy Transition Council and McKinsey. The ETP, initially designed for a 2050 goal, provided the President with the confidence to make that commitment for Nigeria and the ETP was subsequently approved by the Nigerian government's Federal Executive Council.

A key element of the ETP, and an element common to similar plans by countries at a similar stage of economic development, is the concept of transition that is wider and more faceted than the decarbonization plans of many developed countries.

For Nigeria, and most of Africa, transition includes progress towards providing universal energy access and electricity for cooking as well as other UN Sustainable Development Goals (**UNSDGs**). It includes improving people's health, living standards and economic opportunities. Very significantly, it includes progress towards low-carbon energy that requires the ramp-up of natural gas as a transition fuel and Nigeria expanding its domestic oil refining capacity in the short to medium term, while keeping an eye on the need to pivot away from fossil fuels and embrace low-carbon generation and electrical vehicles (**EVs**). Out of all the challenges Nigeria faces, this is possibly the hardest - balancing the fiscal realities of a country largely dependent on oil and gas revenues with a large population experiencing significant poverty and lacking basic services, as against the need to decarbonize.

This nuance is vital for prospective investors in Nigeria to understand, as many investors internationally increasingly withdraw from "dirty" sectors and related projects.

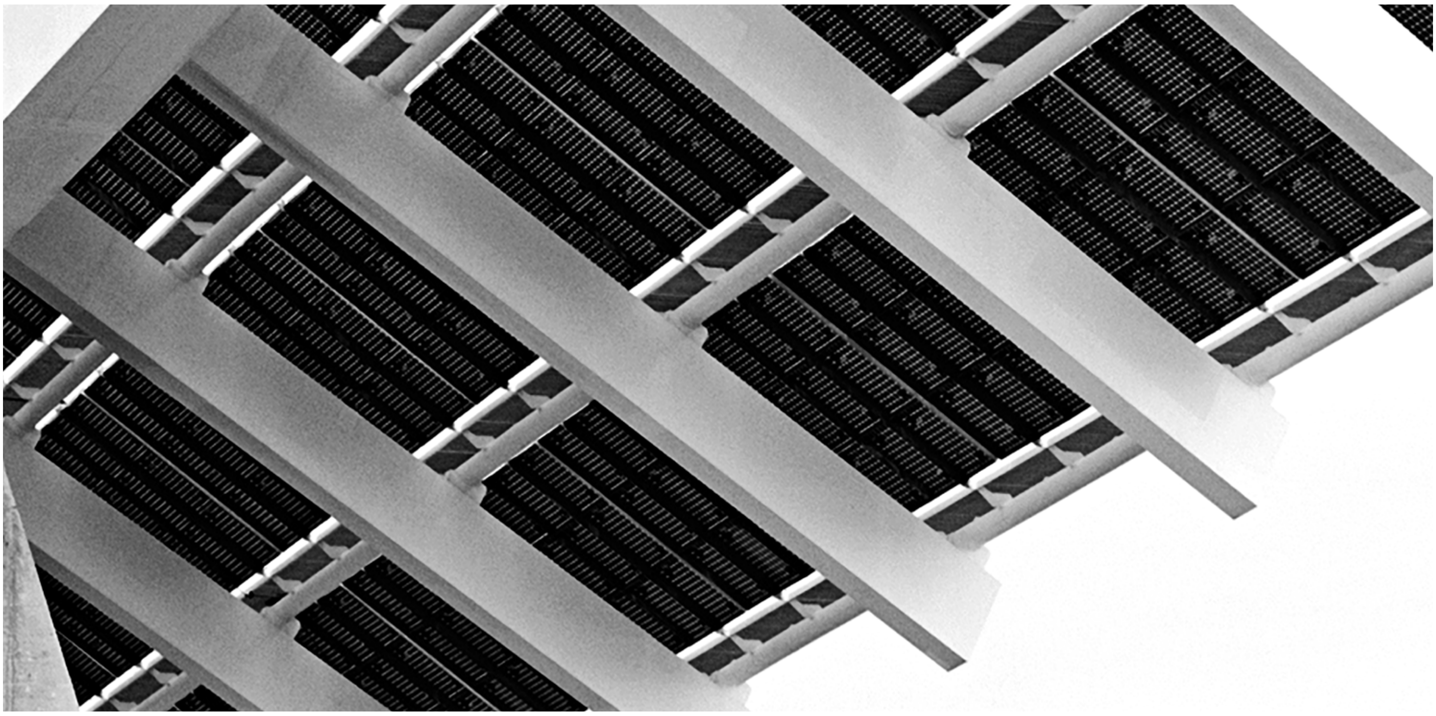
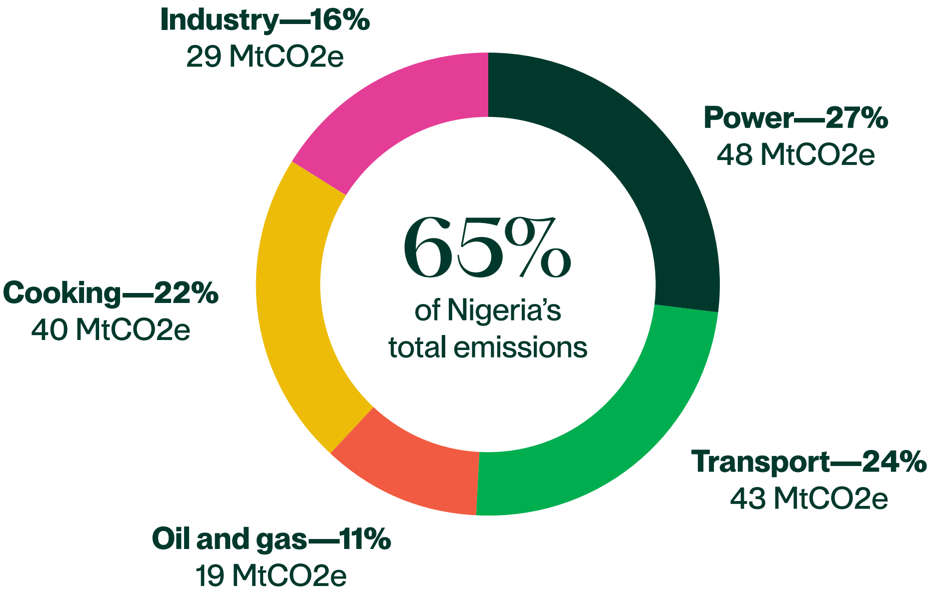


Figure 1:



Source: Nigeria Energy Transition Plan (2020)
https://www.energytransition.gov.ng/

SUMMARY

The ETP sets out an ambitious blueprint for Nigeria to achieve net zero by 2060. It approaches this by sector - Power, Transport, Cooking, Industry and Oil and Gas - focusing on the largest sources of Nigeria's emissions.

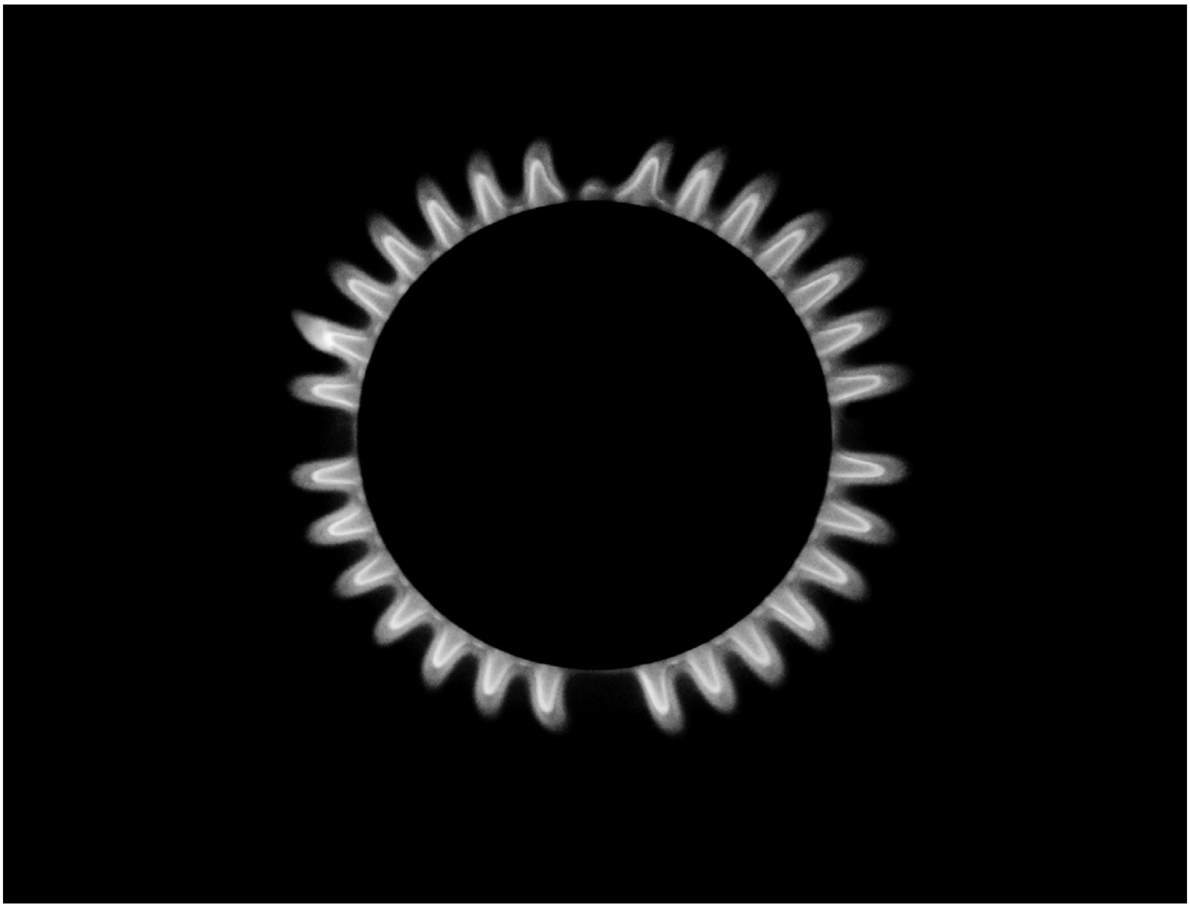
Analyzing the merits or sufficiency of the plans laid out by the ETP for these sectors in detail is beyond the scope of this paper, but it is helpful to summarize these plans.

Power

- The power sector is the largest source of Nigeria's emissions, arising mostly from fossil fuel power generation and off-grid use of diesel/gasoline generators.
- Consequently, a focus for the power sector is to eliminate fossil fuel generators entirely and replace generation capacity with renewables, particularly solar PV. The economic reality facing Nigeria (and many other African countries and other developing countries globally) is that this requires an increase in the use of natural gas to power as a "transitional" fuel – in Nigeria's case, the ETP calls for a ramp-up of gas until 2030.
- The ETP plans for actions in stages:
  - Up until 2030, increasing on-grid generation capacity, expanding transmission and distribution networks and deploying of off-grid renewable energy to replace fuel generators;
  - Post 2030, deploying on-grid renewable capacity (at a rate of 7GW per year) and energy storage; and
  - Post 2040, deploying hydrogen production facilities which are expected to be vital for clean energy storage and transport.

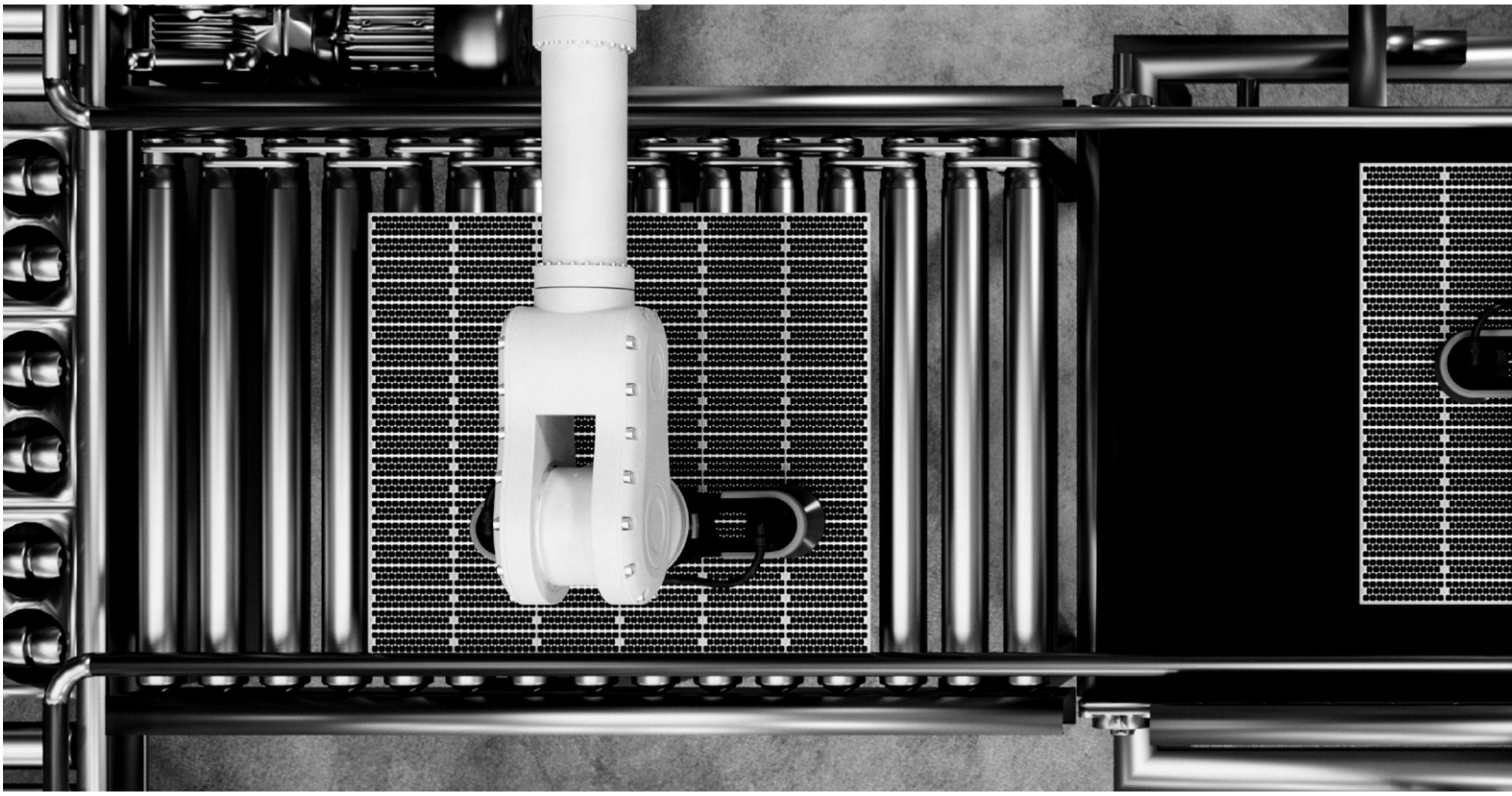
Transport

- The transport sector, critical for Nigeria's economic development as Africa's most populous nation, is the second largest source of emissions, with about 72% of those emissions arising from the use of passenger vehicles. Shifting away from the use of petrol fuelled vehicles is not only key to Nigeria's decarbonization but significant in terms of reducing domestic demand for petrol and pressure on providing fuel subsidies.
- The ETP focuses on a shift towards public transport (i.e. electric buses), the deployment of biofuels and the installation of charging infrastructure for EVs. Its goal is to deploy 13 million EVs (60% of the country's total vehicles) by 2050 with a further 20% of hybrid vehicles, with the remaining 20% continuing as legacy gas- and diesel-powered passenger vehicles. By 2060, the ETP aims for 100% of passenger vehicles to be fully electric.



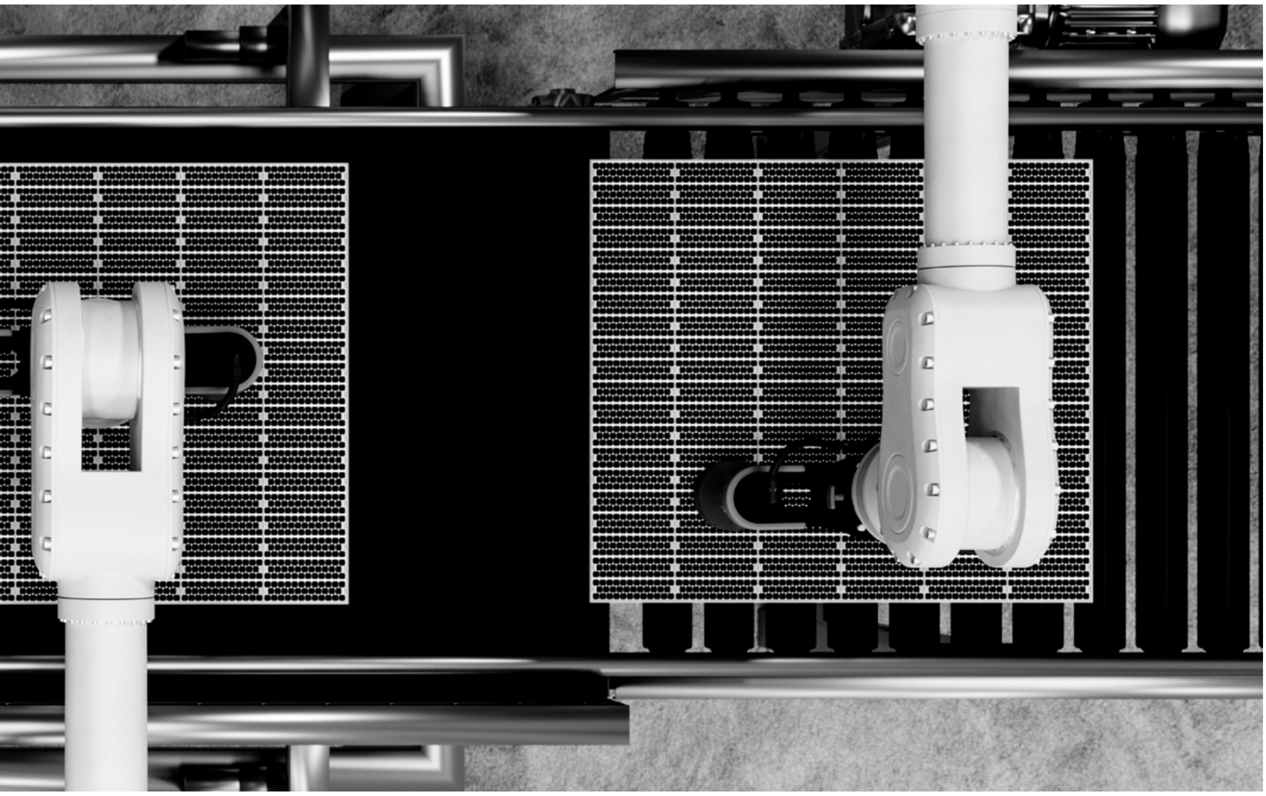
Cooking

- Cooking is the third largest source of emissions in Nigeria and is a challenge generally absent from the decarbonization plans for developed countries, but key for most of Africa. Aside from contributing to significant emissions, lack of access to “clean” cooking causes significant health and quality of life issues for people, particularly women and children, and universal access to clean cooking is a UNSDG.
- The rural areas most in need are the same areas which have intermittent power supply or no electricity at all. The ETP’s strategy for this sector includes utilizing efficient wood stoves and replacing traditional fuels with LPG and biogas. Similarly to natural gas in the power sector, LPG is intended as a “transition” fuel for cooking.



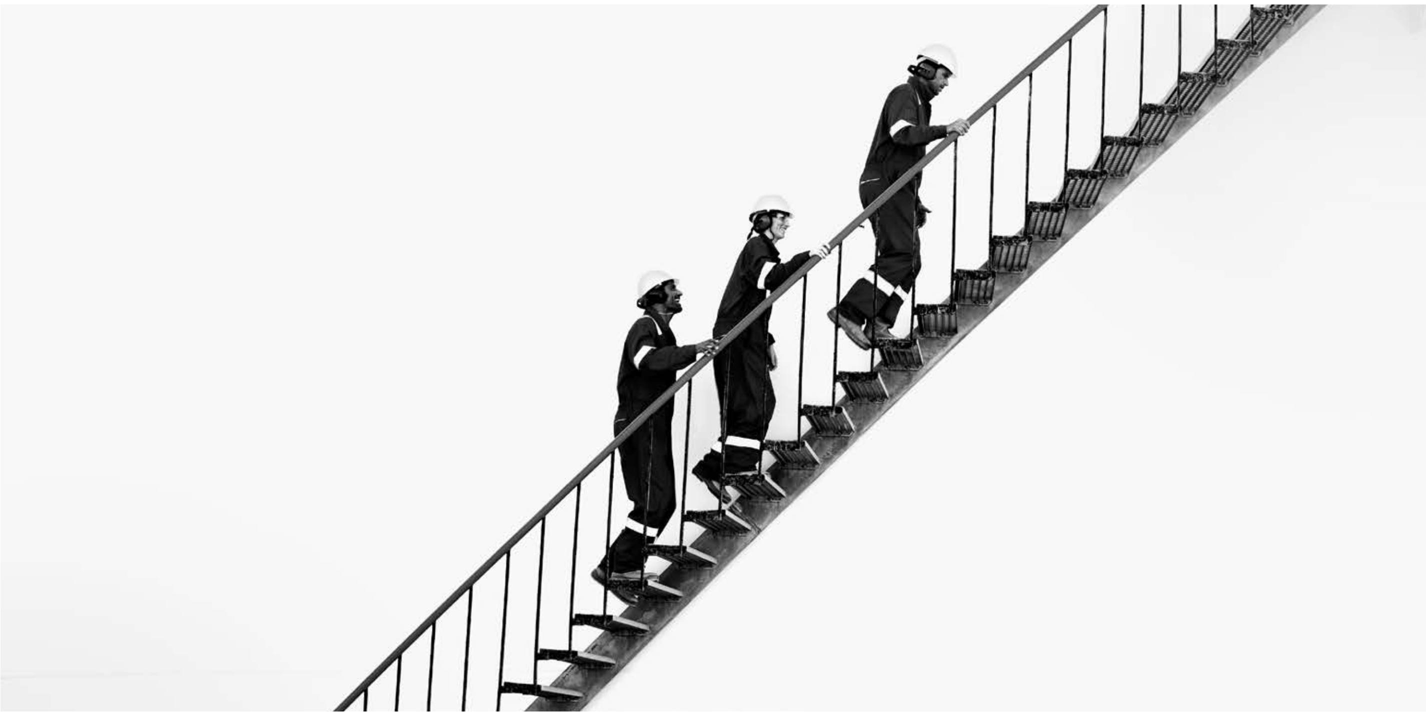
Industry

- Cement and ammonia production and industrial heating account for 93% of industrial sector related emissions, a relative measure of how important the former's processes are to the modern Nigerian economy.
- The ETP's strategy for industry includes using "green" (low-carbon fuelled hydrogen production via renewables) and "blue" (natural gas fuelled hydrogen production) hydrogen for ammonia production and through the substitution of clinker with calcined clay and applying bio-energy with carbon capture and storage in cement production.
- Reducing emissions for heating is to be achieved with low-carbon electricity and hydrogen replacing natural gas and biomass.



Oil and gas

- Oil and gas emissions emanate from leakages in storage and transport facilities, venting, flaring and upstream related activities.
- A key assumption of the ETP is that in the medium to long-term, oil production-related emissions will reduce due to a decline in international demand for oil as the world shifts away from fossil fuels.
- This assumed decrease in emissions will be countered with emissions arising from the greater utilisation of natural gas (as part of the plan to use gas as a "transition fuel") and the planned increase in domestic refining capacity (partly to replace the loss in international demand). Under the ETP, Nigeria's refining capacity is projected to increase to 273 million barrels of oil in 2030 and 422 million barrels by 2050.



ETP progress

Since launching the ETP, the Nigerian government has taken proactive steps towards implementing its objectives and promoting its financing. For instance, in March 2022 the Nigerian Federal Government published '*Investing in Nigeria's Energy Transition Opportunity*', highlighting an initial USD23bn opportunity for "financiers, donors and other partners" to contribute to the delivery of the ETP. It also identified objectives to be accomplished in the short term, including:

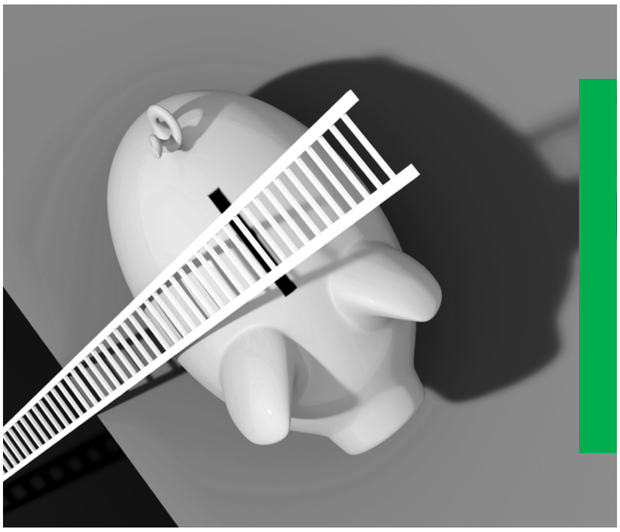
- Securing at least USD10bn financing commitment to "kick-start" implementation of the ETP, a "down payment" towards the estimated total;
- Requiring original equipment manufacturers to commence local manufacturing and assembly of key technologies by 2025;
- Implementing technical assistance for skill development and knowledge transfer for the deployment of electric vehicles, establishment of a carbon market and development of a just transition beyond oil and gas;
- Playing a leadership role by promoting a just, inclusive and equitable energy transition in Africa; and
- Supporting a conducive business and investment environment for Nigeria's energy transition. Whilst these objectives seem sensible, actual progress on the implementation of the ETP has been slow and has not been free from challenges, including numerous industry-wide issues facing the Nigerian electricity sector, inflation and currency devaluation.

COSTS OF THE ETP

The ETP estimates that USD1.9trn will be required to achieve net zero emissions by 2060, or USD410bn above "projected usual spending". The bulk of this cost comes from decarbonization of the power sector (USD270bn for power generation and USD135bn for transmission and distribution networks) and other infrastructure. This will translate to Nigeria needing about USD10bn of additional finance annually. Whilst the size of funding required for Nigeria to achieve its ETP objectives is daunting, the ETP presents an enormous opportunity for different types of financiers (in particular, climate financiers) to come in to plug this funding gap.

In the next section, we explore the role of climate finance as a catalyst for accelerating Nigeria's energy transition. We identify in particular: (i) the various sources of climate finance in Nigeria, (ii) the different sources of equity and debt instruments through which climate investments are made in Nigeria, and (iii) the challenges faced by climate financiers and measures that Nigerian businesses and investors can take to maximize climate finance opportunities in Nigeria.

B. Financing opportunities *in Nigeria*



In 2021/2022, Nigerian climate finance[11] totalled USD2.5bn, up from USD1.9bn in 2019/2020 (an 32% increase). Also, during the same period, Nigeria was the third-largest recipient of tracked climate finance in Africa in 2021/2022,[12] signalling enhanced activity in climate finance.

However, USD2.5bn amounts to less than 1% of Nigeria's national GDP[13] and is almost equivalent to Nigeria's spending on foreign debt servicing during the same period.[14] Furthermore, for a country whose climate finance needs are estimated at USD29.7bn[15] annually until 2030, the financing gap of USD27.2bn only emphasizes Nigeria's slow pace in securing climate finance. It is neither proportionate to the size of its economy, nor its vulnerability to climate shocks.[16]

TYPICAL SOURCES OF CLIMATE FINANCE IN NIGERIA

The financing sources available for climate finance are more or less the same across the globe. At the top level, financing source is split into 'public' or 'private' domain. At a deeper level, they can be divided into the following four categories: (i) domestic public; (ii) international public; (iii) domestic private; and (iv) international private.

Although not exhaustive, Table 1 below lists and summarizes examples of available financing sources for climate finance in Nigeria.

TABLE 1: CLIMATE FINANCE SOURCES IN NIGERIA

	Public	Private

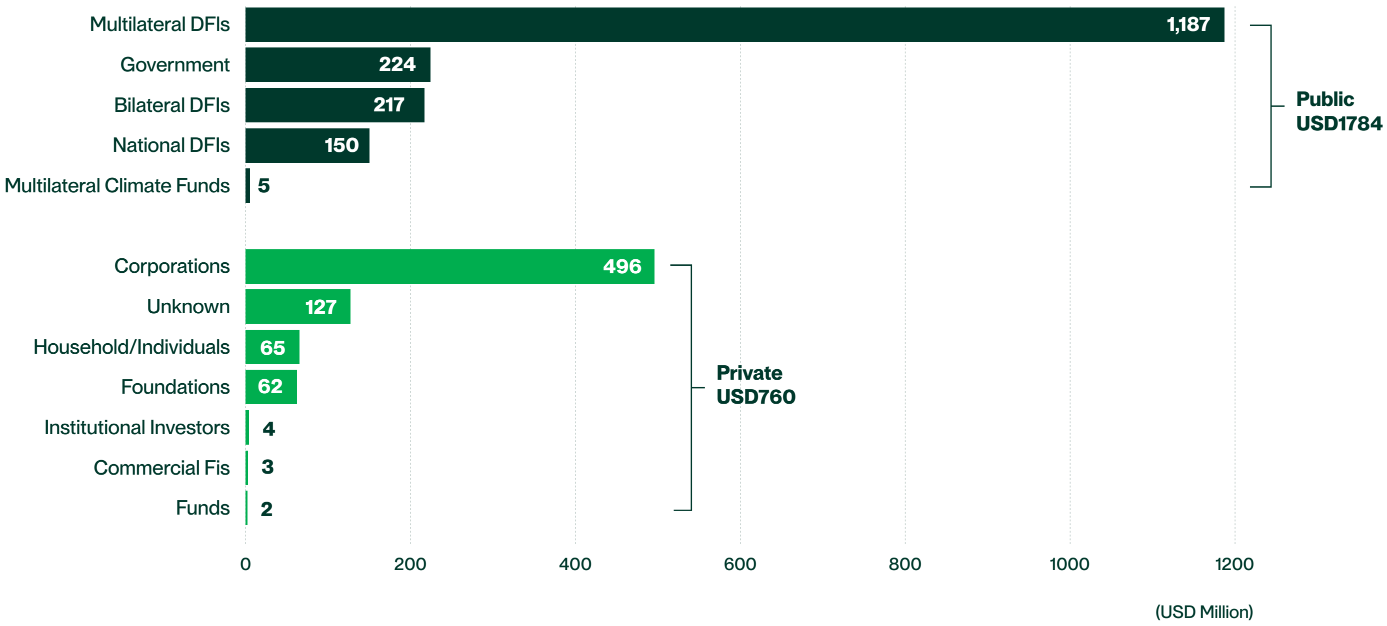
Domestic	• **Budget**. Federal, sectoral and sub-national budgets, which lead to grants and subsidies for promoting energy projects, especially renewable energy and rural electrification. An example of this is the exemption of solar panel imports from custom duty.
	• **Sovereign green bonds**.[17] In 2017, Nigeria became the first African country to issue a sovereign green bond, raising USD26m. The proceeds were used to fund solar power and afforestation projects. A second sovereign green bond issued in 2019 raised USD42m; proceeds were used to finance afforestation, reforestation and ecological restoration projects, off-grid solar and wind farm equipment and irrigation.
	• **State-owned/affiliated financial institutions.** These include the Development Bank of Nigeria, the Bank of Industry and the Nigeria Sovereign Investment Authority, which are organizations that provide long-term finance for energy infrastructure projects – the latter having launched in 2023 a USD500m Renewables Investment Platform for Limitless Energy in conjunction with IFC to propel energy transition in Nigeria.
	• **Domestic climate change funds.** For instance, Solar Hybrid Mini Grid has USD150m available funds for supporting the development of private sector mini grids in unreserved areas in Nigeria.
		• **Commercial banks**. Commercial banks remain the mainstay of energy project financing in Nigeria – however, there is a general perception that their overall involvement in providing climate financing falls short of expected levels.
		• **Private enterprise**. For instance, Infracredit, a government-backed private company that provides local currency guarantees to enhance the credit quality of debt instruments issued to finance infrastructure projects in Nigeria.
		• **Fund Managers**. Certain infrastructure funds in Nigeria, such as Chapel Hill Denham's Nigeria Infrastructure Debt Fund, have been active in providing financing to clean energy developers – financing solar mini grids and other off-grid solar projects.
		• **Corporate green bonds**.[18] There have been two corporate green bonds:
		  • (i) Access Bank PLC issued NGN15bn green bonds in March 2019 on the Nigerian stock exchange (matured in 2024); and
		  • (ii) North South Power Company Limited issued NGN50bn green infrastructure bonds in March 2019 (maturing in 2034) to finance its hydropower assets.

International	• **Multilateral development financial institutions (DFIs)** and **multilateral development banks (MDB)**. For instance, in July 2024, African Development Bank Group approved USD500m loan to boost electricity access in Nigeria. • **Multilateral climate funds.** For instance, Clean Technology Fund (**CTF**) and the Strategic Climate Fund (**SCF**) provided by the Climate Investment Funds (**CIF**), Global Environmental Facility (**GEF**) and Adaptation Fund. • **Non-climate focused multilateral funds**. • **Bilateral grants and concessionary loans**. • **Bilateral loans to support adaptation actions.** These include bilateral commitments based on government-to-government negotiations or targeted climate funds (these are not multilateral climate funds), e.g. UK's International Climate Fund and EU's Global Climate Change Alliance.[19]	• **Non-concessional arm of DFIs and MDBs.** These include IFC, DFC, EID, KfW, FMO, Proparco and Norfund. • **Private equity/funds.** In 2020, private equity firms have invested USD350m in Nigeria's energy sector, supporting innovation and expansion in renewable energy and clean technologies.

PUBLIC AND PRIVATE FUNDERS AS SOURCES OF CLIMATE FINANCE IN NIGERIA

In addition to Table 1, Figure 2 below provides a helpful overview of the actual allocation of climate finance in Nigeria, focusing on the interplay between public and private financing as sources of climate finance in Nigeria.

Figure 2: Sources of climate finance in Nigeria



Source: Landscape of Climate Finance in Nigeria, 2024 by Climate Policy Initiative

PUBLIC FINANCING SOURCES

As shown in Figure 2 above, public bodies provided 70% of the total climate finance.

Multilateral development finance institutions (**DFIs**) were the leading provider of public financing, accounting for almost 67% of the public capital. They used debt instruments exclusively, 61% on concessional terms (i.e. grants and low-cost debt) and 39% on non-concessional terms (i.e. market-rate debt and equity).[20] 97% of bilateral DFIs' contributions, and 100% of national DFIs' contributions were provided on concessional terms.

Of the USD224m contribution made by donor governments (e.g. France, the US and Japan), 89% was made in the form of grants, directed towards policy, national budget support and capacity building.[21]

PRIVATE FINANCING SOURCES

Private sources have contributed the remaining 30% of Nigeria's climate finance, providing USD760m. Corporations led the way, providing 65% of the private capital. Unlike the multilateral DFIs, corporations invested heavily by equity finance and at that, exclusively on balance sheet for solar PV power and heat generation.[22]

In contrast to the size of their assets, the total contribution by institutional investors[23] and commercial financial institutions stood at USD7m only, with each actor accounting less than 1% of tracked climate finance.

PUBLIC VS PRIVATE FUNDING

As seen in Figure 2, the ratio of contribution to climate finance in Nigeria is skewed at 70:30 in favor of public funding. Another stark contrast between public and private financing sources is the use of debt vis-à-vis equity as financial instruments for climate finance. While an immense portion of climate finance sourced from public actors was made by way of debt, that from the private actors was equity.

According to the National Bureau of Statistics, Nigeria's foreign debt for the first quarter of 2024 totalled USD42.12bn, while that for domestic debt was USD49.35bn.[24] With the debt burden reaching 37% of GDP in 2023,[25] the continued use of debt-based financial instruments is simply not viable. The significance of expansive use of equity-financed investments goes beyond the realm of climate finance but to the heart of sustaining Nigeria's economy.

The next section will delve further into the use of debt versus equity financial instruments by examining the application of financing source in respect of each type/use of climate finance in Nigeria: (i) migration finance; (ii) adaptation finance; and (iii) dual-usage finance.

USE OF DEBT VS EQUITY INVESTMENT FOR CLIMATE FINANCE IN NIGERIA

Of the aforementioned climate finance needs of USD29.7bn annually until 2030, it is estimated that during the same period, USD17.1bn is required to address migration needs (preventing or reducing emissions), and USD12bn for adaptation needs (building adaptive capacity to adjust to the current and future effects of climate change).[26] Figure 3 below presents a helpful illustration of not only types of financial instrument deployed in Nigeria but also information on invested sectors, as well as on the uses of climate finance.

Figure 3: Landscape of climate finance in Nigeria 2021/22

USD2.5bn
2021/22

Nigeria climate finance flows along their lifecycle in 2021/22.
Values are averages of two years' data to smooth out fluctuations, in USD millions

SOURCES AND INTERMEDIARIES

Which type of organizations are sources or intermediaries of capital for climate finance?

INSTRUMENTS

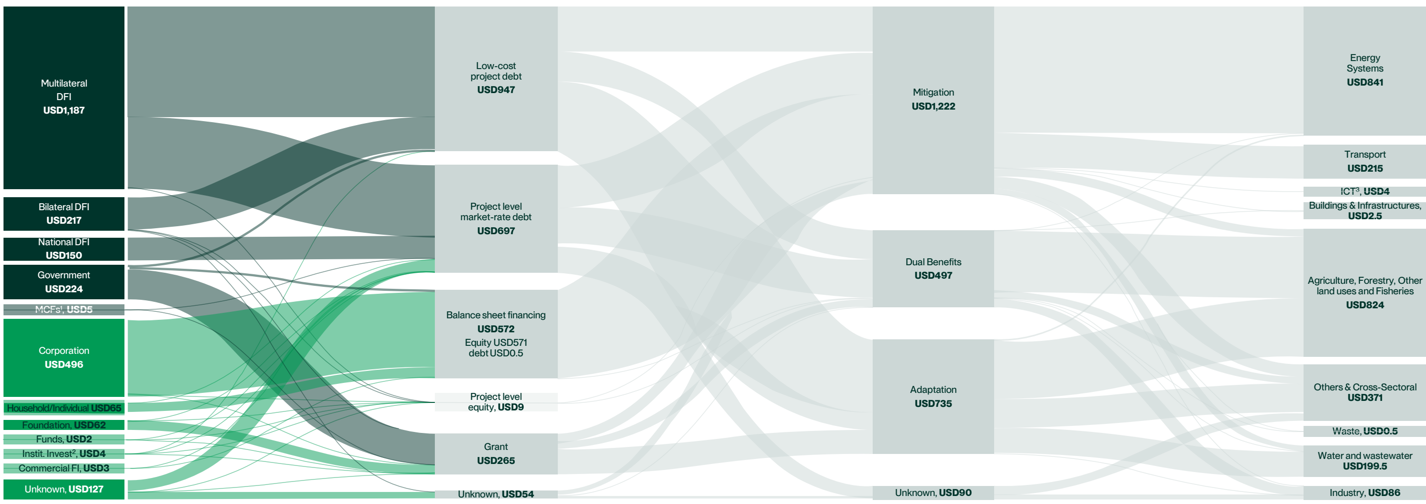
What mix of financial instruments are used?

USES

What types of activities are financed?

SECTORS

What is the finance used for?



PRIVATE PUBLIC

[1]**MCFs**: Multilateral Climate Funds
[2]**Instit. Invest**: Institutional Investors

[3]**ICT:** Information and Communications Technology

Source: Landscape of Climate Finance in Nigeria, 2024 by Climate Policy Initiative

MITIGATION FINANCE

Mitigation finance accounted for 48% of the total climate finance in 2021/2022. This was largely driven by investments into the renewable energy sector, notably solar PV. Private actors were more active than public actors in mitigation finance, contributing 51% of the total mitigation. 73% of mitigation finance was used for energy-related sectors (which constituted the largest segment of climate finance).[27] Compared to other types of climate finance uses, 47% of investment in mitigation finance was made in equity.

ADAPTATION FINANCE

Adaptation finance stood at 29% of the total climate finance, which represented only 6% of Nigeria's annual adaptation finance needs. Most adaptation finance was directed to the agriculture, forestry, and other land uses (**AFOLU**) and the fisheries sector. More imminent adaptation investment is required in the water and wastewater sector, given that less than 40% of the population has direct access to potable water. It is also crucial that any new infrastructure built using adaptation finance adheres to climate-resilient principles, adapting to climate risks. 78% of adaptation finance relied on debt instruments.

DUAL-BENEFIT FINANCE

Dual-benefit finance accounted for 20% of the total climate finance. Like adaptation finance, the focus remained mainly on the AFOLU and fisheries sectors. The category of investment by dual-benefit finance should branch out further, for instance, into the energy-efficient cooling system, given the growing heatwaves and its already expanding domestic market for cooling products. As seen in Figure 3, almost all dual-benefit finance is derived from public finance sources and at that by way of debt.

CLIMATE FINANCE CHALLENGES IN NIGERIA

For a country that is significantly exposed to the effects of climate change and needs USD29.7bn of climate finance per annum until 2030, the pace of climate finance in Nigeria has been rather slow. Perhaps it is no surprise that Nigeria's sustainable energy sources are not central to the government policy, given the country's heavy reliance on fossil fuels. However, that is unlikely to be the only reason. This section investigates some of the other causes adversely affecting the pace of Nigeria's transition developments.

A key factor contributing to this situation is that international climate finance providers take a more conservative view in relation to climate finance projects. This has led to the international climate finance providers being unwilling to lend on local currency, with Nigeria bearing exchange rate risks. This increases Nigeria's financing costs when it is already drowning in debt burdens. Without an imminent shift by international climate finance providers to increased use of equity (as opposed to debt) financial instruments, Nigeria's affordability of international finance will remain stifled.

However, even if there were a surge in the use of equity financial instruments by the international climate finance providers, such funding comes with conditions. The international public climate finance providers typically require implementation of wide-ranging reforms and specific policies, e.g. green building standards, energy efficiency standards, consolidated international standard of disclosure and governance and accountability. This can take a long time to develop and implement. By having international private sector investors bridging this financing gap would not necessarily alleviate the problem either; various investors might have distinct standards and needs, which can increase the complexity and expense of structuring and managing deals.

Perhaps the most fundamental challenge facing climate finance in Nigeria is the shortage of bankable projects. A considerable number of projects in the pipeline fail to progress past the preliminary financing stage due to a lack of clear financial models/plans or promising feasibility/project documentation.[28] Renewable energy projects are often too small in scale and ticket size with financial return being set too low. When coupled with the other challenges identified above, the scarcity of bankable projects creates a multifaceted, compounded issue that further impedes access and affordability of climate finance in Nigeria.

ENHANCING CLIMATE FINANCE OPPORTUNITIES IN NIGERIA

Given the significant contribution to its economy, Nigeria's continued focus and reliance on fossil fuel is understandable, as is the seeming preference of major Nigerian financiers to continue to allocate the bulk of their capital to that sector. However, diversification into climate finance can be developed in parallel (and is certainly needed).[29] The Nigerian government has done so to a degree, having produced a number of climate policies and action plans. Yet, without a more integrated and consolidated official guidance, there is a risk that different policies and action plans may conflict with each other.

Nigerian businesses could help steer the direction and pace of climate finance in Nigeria by working with the government: (i) to drill down and produce a joint list of climate finance development priorities for Nigeria; (ii) to secure appropriate budget for grants/subsidies or other incentives for investors aimed at promoting transition developments; and (iii) to establish a framework that tracks climate finance and help oversee the implementation.

It is highly likely that the above measures will involve a thorough review of Nigeria's allocation of risks and options. Nigeria could use this occasion as a chance to harmonize its climate finance goals as closely as possible with those of its investors. This can lead to a better understanding of investors' preferences and objectives, and ultimately to enhanced funding opportunities. More specifically, the ensuing alignment can act as an effective impetus to raise awareness, develop and implement on an ongoing basis, a structured and stable regulatory framework, with disclosure, governance and accountability policies that meet international standards, which are fundamental conditions of international climate finance.

It is widely recognized that a shift in risk appetite of the international climate finance providers is a pre-condition for a meaningful uptake in climate finance projects. An essential part of this shift is the willingness by the international climate financiers to lend in Naira or to use currency hedging to mitigate their exposure. However, this is beyond the control of Nigerian companies in their capacity as borrowers or sponsors.

What Nigerian companies could do to improve accessibility of funding, without increasing their financing costs, is, to be innovative and broaden their pool of funding sources and types.

On the public sources side, support is available in the form of grants/subsidy and through state-owned financial institutions. For example, the Rural Electrification Fund supports off-grid and rural electrification projects across Nigeria. The Development Bank of Nigeria and the Bank of Industry each offer a range of funds dedicated to developmental investments in Nigeria. Further scaling up the Nigerian green bond market will also unlock more capital for climate finance (e.g. for the development of renewable energy projects).

On the private sources side, there is a considerable amount of capital held by institutional investors and commercial financial institutions that can be released for climate financing. Private equity can take the lead on this front. Despite the macro-economic concerns, the Nigerian market remains central to many funds' investment strategy due to its high growth potential and returns. The funds' building of a robust base of local investors will be crucial to the future of Nigeria's transition developments, as international investors are more likely to withdraw during periods of instability. Private funds can deploy funding for large deals as well as smaller scale investments with average ticket sizes of USD5m. Corporate green bonds issued by private companies is another avenue to raise necessary financing for Nigerian companies. Nigerian companies can also make a better use of sub-sovereign guarantees (in addition to sovereign guarantees). Sub-sovereign guarantees serve not only as an effective investment catalyst for the relevant projects but also the continued exposure by the various investors increases the likelihood of them becoming vested and committed to more future long-term investment into the infrastructure sector in Nigeria. Over time, this can be an effective means to lower the accessibility barriers for domestic investment in the infrastructure sector.

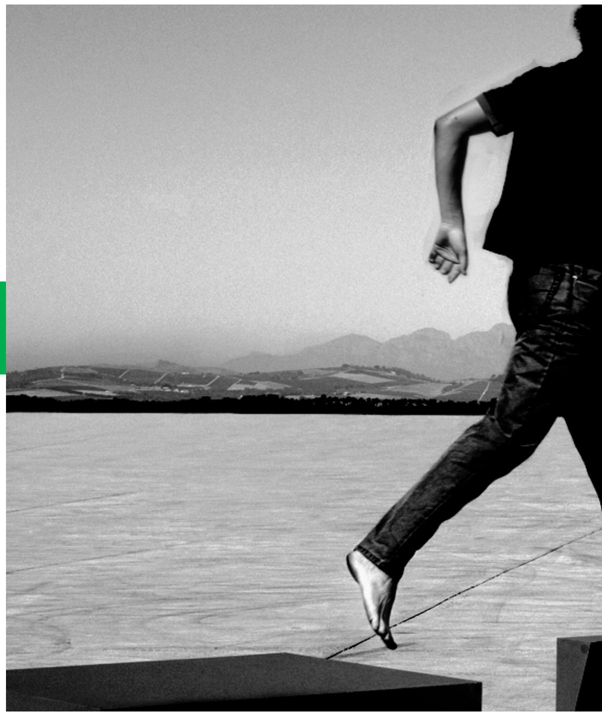
Alternatively, instead of relying solely on public sources or private sources exclusively, Nigerian businesses can also use blended finance, which is a cross-over between public and private financing, e.g. Carbon Vista.[30] Given the DFIs' reputation, the use of development finance (from public and philanthropic funders) decreases risk perception, which in turn facilitates the mobilization of additional private investment towards sustainable development in Nigeria.[31] In addition to the DFIs' involvement being an effective risk mitigation strategy, private funds can maximize their fundraising possibilities by having DFIs refine fund proposals, support the development of their impact and serve as "anchor investors".[32]

While the above-mentioned changes are being implemented and, options studied and considered, Nigerian businesses can continue to take advantage of the vast resources of various international climate funds. For instance, CIF offers funding via CTF and STF, accessible through multilateral development banks (the African Development Bank being one of such banks). There is also GCF funding, accessible through the Development Bank of Nigeria. To do so, it is important that Nigerian companies understand, and are up to date with, the eligibility criteria of each such climate funds.

The above suggestions are not exhaustive but, if progressed in tandem, would significantly contribute towards improving climate finance opportunities in Nigeria.

It should be noted that none of the above will make a meaningful difference unless there are more bankable projects with an improved profile. As mentioned above, this is a complex issue. Having said that, an efficient process of marrying up the government plans with the projects in the pipeline, as well as swiftly identifying the risk appetite, and objectives, of the financiers should help. This can be fleshed out by continuously reviewing Nigeria's allocation of risks and options. The alignment of goals should help closing investment gaps. Moreover, an increased investment in the early stages of a project – for instance, more emphasis on pre-feasibility studies – should positively influence the project outlook by recognizing potential issues and searching for mitigation at the outset, thereby making the project more appealing to financiers.

C. Actions



In this section, we look at some of the actions that key stakeholders can take to assist Nigeria's energy transition having reference to the strategies, actions and likely impacts of the ETP. These stakeholders include Nigerian companies and those providing funds to them. Nigerian companies can, and will, participate in Nigeria's energy transition in different roles i.e. either: (i) as consumers of relevant goods and services; (ii) as part of the supply chains for those goods and services; (iii) as investment providers to others who do some or all these roles simultaneously. Small businesses are a powerful force in Nigeria and are expected to remain so in the future, with the country's informal market of around 40 million enterprises contributing over half of its GDP.[33]

Furthermore, we will primarily focus on the role of the private sector while also acknowledging the actions that the government needs to take to create an enabling environment. This includes implementing permissive regulations and providing well-considered support to enable and foster energy transition investments.

Some of these government actions are part of the ETP or are ancillary to it, such as the full implementation of measures referred to in the Power Sector Recovery Plan[34], which aim to improve the financial viability of the power sector, enhance regulatory frameworks and ensure the sustainability of power supply. Progress is ongoing though with the 2023 Electricity Act allowing states to establish their own electricity markets and providing a framework for energy transition along with other reforms and multilateral development banks are aiding the process.[35]

Other actions fall under the broader category of general reforms needed to improve Nigeria's economic framework and de-risk key transactions. When considering the role that Nigerian companies can play in driving Nigeria's energy transition objectives, it is important to recognize that private Nigerian companies operate in a challenging environment for many reasons. This challenging environment is aptly summarized by the IFC in comments[36] that Nigeria's "fiscal envelope" is relatively small largely due to low non-oil revenues, making it more difficult for the government to efficiently deliver the public services that can make the private sector more competitive. Historically, inefficiencies arising from government policies and practices such as fuel subsidies, foreign exchange regulations and limitations on Nigerian companies' access to credit, have created barriers.

Reform is an ongoing process and will take time. The removal of fuel subsidies is a positive step and so are recent changes by the Central Bank of Nigeria, including the simplification of the exchange-rate regime and launch of an electronic matching platform for all foreign exchange. These have improved prospects for Nigeria's sovereign credit profile, despite remaining challenges.[37]

Energy transition actions should be taken in accordance with a well-structured plan. Key to energy transition planning for any business operating in any jurisdiction (regardless of the sector of operations) is matching the financial and non-financial objectives of that business and assessing how the actions of that business will impact on its business model. This can be a complex balance to strike, but what is critical for any good energy transition plan is to have attainable actions as well as a framework by which performance will be measured, monitored and reported.

Drawing inspiration from the ETP where possible, we offer our thoughts below on certain critical actions that key stakeholders can take to enable and foster investments in Nigeria's energy transition.

SERVICES / FINANCING

Private companies can play a vital role in providing services essential to energy transition activites, whether it is providing advice and know-how which enables their clients to utilize new technologies or importantly supplying the finance they need to procure and operate them. In that regard, many energy transition activities involve significant upfront costs with the promise of lower operating costs and more sustainable byproducts. Examples include solar irrigation pumps in agriculture, biogas cookers and electric cookstoves in cooking and biofuels and EVs in transport. Cheap and easily accessible financing solutions are crucial to accelerating the adoption and use of these items.

The need for commercial lenders to provide specific financing solutions to households and businesses for the purchase of EVs deserves note, with recent research[38] concluding that Nigeria's vast potential to harness economic growth through the production and adoption of EVs will be hampered without tailored de-risking of EV financing.

INFRASTRUCTURE DEVELOPMENT

Developing critical infrastructure is essential for achieving Nigeria's energy transition goals. However, this requires significant investments which the government alone cannot meet. The private sector must seize the opportunity to fill this gap (particularly in the power sector where this intervention is most needed).

The government should lead the expansion and reinforcement of Nigeria's grid network. Nigeria currently has about 13GW of installed rated capacity but only generates around 4–5 GW each day, partly due to grid issues.[39] Expanding generation without expanding the grid will lead to inefficiencies and curtailment a significant concern for independent renewable power producers and their financiers.

DECENTRALIZED (OFF-GRID) SOLUTIONS

Due to the challenges of scaling up Nigeria's nascent renewable sector and grid issues such as unreliable electricity, decentralized (off-grid) options such as solar kits and mini-grids (commonly featuring PV panels, inverters and some degree of battery storage) are ideal for Nigerian businesses (especially MSMEs) in the short term. These are increasingly being used in developing countries in Africa and globally as substitutes for fuel generators. These decentralized solutions present huge opportunities to local companies in various capacities (as consumers, suppliers and service providers) to invest in the renewables sector, particularly where they can replace less efficient and more costly fossil fuel generators.

Boosting the affordability of these systems is crucial for their adoption by local companies, especially SMEs. The government needs to intervene and play a key role here through further subsidies and tax incentives for key equipment purchases and for onshoring their manufacture and assembly.

ON-GRID SOLUTIONS

There is significant scope for public-private partnerships to meet Nigeria's on-grid infrastructure needs. Deploying sustainable low-cost renewable projects at utility scale is central to the ETP in the medium and long terms (both in terms of scaling up low-carbon power generation and building a long-term hydrogen market). As we have discussed, independent power producers wish to operate within a permissive regulatory regime that allows them to connect their generation facilities to the electricity network efficiently, with grid operations optimized to minimize transmission losses and failures which impact on revenue. We note that significant steps are already being taken in this regard, with the Presidential Power Initiative reportedly advancing apace.

The government will need to tap into creative solutions and products to address the issue of lack of credit support for NBET's payment obligations, which had historically made it difficult for independent power producers to access funding. In this regard, the Electricity Act 2023 introduced a regime allowing distribution companies to purchase electricity from generators directly, marking a significant change from NBET acting as sole intermediary. While undoubtedly a step in the right direction, more efforts to allow independent generators to recover revenue in line with costs are needed.

UTILITY-ENABLED DISTRIBUTED ENERGY RESOURCES (DERS)

Another option for renewable power generation by private companies is utility-enabled distributed energy resources (or **DERs**), discussed in a 2024 Rocky Mountain Institute (**RMI**) report.[40] In Nigeria, DERs involve small to medium energy generation and storage systems located near centres with power needs. Distribution companies can use DERs to increase investment in small scale generation and distribution and earn revenue while developers build and operate generation systems while backstopping grid supply to improve power reliability. An aim is that "end to end" control will improve efficiencies for renewable energy developers and allow them to deliver greater value and reliability.

RMI's report highlights the potential for a 20GW market within the next ten years, with several different potential models: (i) utility enabled C&I where a DER system supplies power during the day with the distribution company providing backup for grid outages; (ii) renewable embedded generation where a DER system supplies power within a franchise area; and (iii) an interconnected mini-grid supplies power via an interconnected mini grid to an underserved area connected to the distribution companies network. Examples of each of these models already operate in Nigeria, with both solar PV and gas-sourced generation being options depending on the region and costs.

CORPORATE POWER PURCHASE AGREEMENTS

Globally, so-called corporate power purchase agreements (PPAs) have become an increasingly important way for private companies to foster investment in renewable energy and achieve their own sustainability goals while also effecting a hedge against increases in electricity prices. While corporate PPAs in the "traditional" sense may be in the medium-term for Nigeria, some Nigerian independent power producers[41] are already providing a range of similar benefits to corporate commercial and industrial buyers through a variety of client-pay models with on-grid or off-grid supply of clean power under long-term **PPAs**. These arrangements typically deploy technology, though more recently we have started to see players (such as Konexa) deliver grid transmitted hydropower solutions as well as others to corporate buyers. In some cases, these include clean power guarantees enabling buyers (most notably multinationals with global operations) to satisfy sustainability goals in a similar manner to corporate PPAs in other markets. While there is room for further development in this space, including to simplify permitting processes and clarify some of the applicable regulatory frameworks, this provides another clean power option for companies without necessarily incurring the upfront costs of a rooftop solar system or mini-grid.

HYDROGEN PRODUCTION

Hydrogen production presents a whole new sector of opportunities for Nigerian companies, including production for energy storage or utilizing hydrogen for lowering emissions in the industrial sector. Whether it is "blue" hydrogen or "green" hydrogen, the Nigeria government needs to create an enabling legal and regulatory framework to drive private investment.

Developing blue hydrogen production is an aim in the short-term. The ETP is seeking for 33% of Nigeria's ammonia production to be produced with blue hydrogen by 2030 – at a basic level this requires producers to be able to make a profit from investing in the necessary equipment and incurring the additional operating costs of the blue hydrogen process.

In the longer term, green hydrogen production and hydrogen to power presents significant opportunities for Nigerian companies, as is the case in similar jurisdictions with strong renewable resources, low labor costs and the potential to generate renewable energy relatively cheaply. While this technology is already proven, producing green hydrogen at a commercial scale has additional requirements including: (i) developing a utility-scale renewable energy sector, (ii) a more efficient grid, (iii) access to what is currently geographically limited electrolyzer manufacturing capacity; and (iv) likely a level of targeted government support, depending on the extent that unit costs decline (as they are expected to do) in the next few years. In Nigeria's case, there is value for both government and private companies to plan the expansion of natural gas infrastructure needed to support the ramp up of natural gas, with the later re-purposing of part of that infrastructure as hydrogen storage and transport.

Producing green hydrogen is also increasingly being viewed globally for its potential as a future export product, with regions featuring strong solar resources and the potential to produce green hydrogen cheaply looking to transport hydrogen (by pipeline or ship) to energy hungry Europe and North America.

Conclusion

We conclude this paper on a hopeful note.

While Nigeria faces significant challenges and obstacles in its energy transition, the potential benefits are equally substantial. These benefits include the creation of significant investment opportunities through the establishment and expansion of new industries related to renewable power, EVs and hydrogen, among others.

Beyond mitigating the worst impacts of climate change, most of these benefits will directly impact the Nigerian people. According to the ETP, there is an estimated net job creation of up to 340,000 new jobs by 2030 and up to 840,000 by 2060 primarily in the Power, Cooking and Transport sectors. In addition to sustainable economic opportunities, the transition promises improvements in the quality of life for all Nigerians. These improvements include reductions in energy poverty, healthier cooking methods, reduced air pollution and the expansion of the non-oil economy which will enable additional funds to be allocated to public services.

Moreover, an often-overlooked benefit is the opportunity for Nigeria to take a leadership role in the energy transition across the African continent.

FOOTNOTES

[1] https://www.iea.org/reports/world-energy-investment-2024

[2] Ibid 1

[3] www.ifc.org/content/dam/ifc/doc/mgrt/cpsd-nigeria.pdf

[4] http://irena.org/Publications/2023/Jan/Renewable-Energy-Roadmap-Nigeria

[5] https://www.nuprc.gov.ng/nigeria-leading-crude-oil-producer-in-africa/

[6] Ibid 4

[7] According to the IEA, the removal of subsidies resulted in a 160% increase in premium gasoline prices and to inflation reaching 27% year-on-year in October 2023

[8] https://dailytrust.com/the-next-presidents-fuel-subsidy-challenge/

[9] https://www.reuters.com/business/energy/nigerias-nnpc-spent-10-billion-fuel-subsidy-2022-2023-01-20/

[10] https://www.energy.gov.ng/papers/NES%202022%20Energy%20Transition%20for%20Achieving%20Net-Zero%20Emission%20by%202060_Comments%20from%20ECN.pdf

[11] The term 'climate finance' can be used interchangeably with 'transition finance'.

[12] Behind Egypt and South Africa, which had flows of USD4.4bn and USD3.5bn, respectively.

[13] USD477bn in 2022 (IMF, 2022).

[14] It is estimated that Nigeria spent USD2.3bn on debt service payments during 2021-2022: www.dmo.gov.ng/debt-profile/external-debts/debt-service/3990-nigeria-s-actual-external-debt-service-payments-from-january-to-december-2021/file and www.dmo.gov.ng/debt-profile/external-debts/debt-service/4230-nigeria-s-actual-external-debt-service-payments-from-january-to-december-2022/file

[15] CPI analysis & NCCC (2023).

[16] In 2022, there was about USD6.7bn in estimated loss and damage resulting from devastating floods across Nigeria.

[17] It should be noted that sovereign green bonds require securing allocation through the annual budget process.

[18] There was another corporate bond issued by a Nigerian entity - Africa Finance Corporation issued CHF150m unsecured benchmark green bonds in September 2020 (maturing in 2025). However, it is not mentioned here because it is listed on the SIX Swiss Exchange.

[19] In July 2024, U.S. Agency for International Development (**USAID**) pledged USD75m with Nigerian Ministry of Power for electricity reforms and clean energy transition. However, at the time of publication the Trump Administration has frozen all of USAID's foreign aid. Nigeria has formed a committee to develop a transition and sustainability plan for USAID but at the time of writing this article, the fate of USAID is unknown.

[20] https://www.climatepolicyinitiative.org/wp-content/uploads/2024/10/Landscape-of-Climate-Finance-in-Nigeria-2024.pdf, p9.

[21] Ibid.

[22] https://www.climatepolicyinitiative.org/wp-content/uploads/2024/10/Landscape-of-Climate-Finance-in-Nigeria-2024.pdf page 11.

[23] This is notwithstanding the size of Nigeria's pension fund market, which – even with currency devaluation – stood at USD14.4bn as of January 2024 according to PENCOM data (previously in 2022 valued at USD35bn).

[24] https://www.nigerianstat.gov.ng/elibrary/read/1241523

[25] https://www.reuters.com/world/africa/nigeria-debt-to-gdp-ratio-seen-rising-close-governments-40-limit-2023-06-22/

[26] CPI analysis & NCCC (2023).

[27] https://www.climatepolicyinitiative.org/wp-content/uploads/2024/10/Landscape-of-Climate-Finance-in-Nigeria-2024.pdf pages 14 and 22.

[28] https://ukniaf.ng/wp-content/uploads/2024/07/Briefing-Note-2-Key-Issues-in-CF-in-NG.pdf

[29] While the gasoline subsidies were ten times higher than initially budgeted and accounted for 23% of the total government expenditure in 2022 (ODI, 2022). However, the Premium Motor Spirit subsidy ended in May 2023 and thus the rising costs for imported gasoline for private power generators led to an increase in investment into solar PV and other renewable solutions in Nigeria.

[30] Established as a joint venture between the Nigeria Sovereign Investment Authority and Vitol in 2023, the Carbon Vista is a fund designed to invest in a range of carbon avoidance and removals projects; https://nsia.com.ng/portfolio/carbon-vista/

[31] https://www.iea.org/reports/financing-clean-energy-in-africa

[32] https://assets.bii.co.uk/wp-content/uploads/2024/09/26144113/Investing-for-Impact-in-African-PE.pdf

[33] https://www.weforum.org/stories/2024/09/startup-reliable-power-nigeria/

[34] https://rea.gov.ng/download/power-sector-recovery-implementation-program-2017-2021/

[35] In 2023 the World Bank approved USD750m in loans and credit to support the performance-based Power Sector Recovery Operation a program aimed at improving the reliability of Nigeria's electricity supply and supporting private developers and financing.

[36] https://www.ifc.org/content/dam/ifc/doc/mgrt/cpsd-nigeria-summary.pdf

[37] https://www.fitchratings.com/research/sovereigns/nigerias-continued-progress-on-reforms-key-to-rating-prospects-10-12-2024

[38] https://www.seforall.org/news/nigerias-e-mobility-surge-to-lower-emissions-cut-costs-and-spur-economic-growth#

[39] In addition to natural gas and water shortages.

[40] RMI: Scaling Utility-Enabled Distributed Energy Resources in Nigeria: A Roadmap to Boost Distribution Company Revenues and Improve Power Availability and Reliability (2004).

[41] Such as Starsight, Cummins, Konexa and Wapsilla among others.

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